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Environmental Monitoring and Support Lab, Las Vegas, Nev

Prepared for

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Jul 76

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NATIONAL EUTROPHICATION SURVEY

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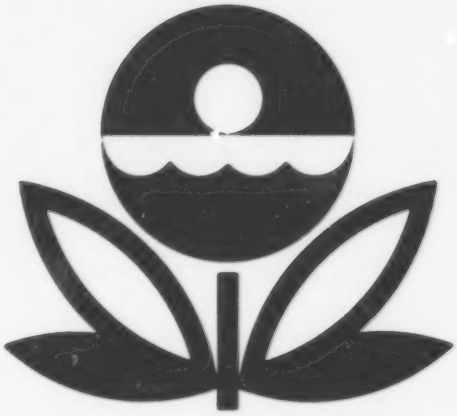

REPORT

ON

WILSON LAKE

LAUDERDALE, COLBERT, LAWRENCE COUNTIES

ALABAMA

EPA REGION IV

WORKING PAPER No. 236

CORVALLIS ENVIRONMENTAL RESEARCH LABORATORY - CORVALLIS, OREGON

and

ENVIRONMENTAL MONITORING & SUPPORT LABORATORY - LAS VEGAS, NEVADA

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16. ABSTRACT

Annual total phosphorus and total nitrogen loadings to the lake were estimated and subdivided according to either point or non-point source origin. An assessment of the lake's trophic condition and limiting nutrient is also provided. All data collected by the U.S.E.P.A. National Eutrophication Survey during the one year study of the lake and its tributaries are included in the report.

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REPORT

ON

WILSON LAKE

LAUDERDALE, COLBERT, LAWRENCE COUNTIES

ALABAMA

EPA REGION IV

WORKING PAPER No. 236

WITH THE COOPERATION OF THE

ALABAMA WATER IMPROVEMENT COMMISSION

AND THE

ALABAMA NATIONAL GUARD

JULY 1976

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FOREWORD

The National Eutrophication Survey was initiated in 1972 in response to an Administration commitment to investigate the nationwide threat of accelerated eutrophication to freshwater lakes and reservoirs.

OBJECTIVES

The Survey was designed to develop, in conjunction with state environmental agencies, information on nutrient sources, concentrations, and impact on selected freshwater lakes as a basis for formulating comprehensive and coordinated national, regional, and state management practices relating to point source discharge reduction and nonpoint source pollution abatement in lake watersheds.

ANALYTIC APPROACH

The mathematical and statistical procedures selected for the Survey's eutrophication analysis are based on related concepts that:

a. A generalized representation or model relating sources, concentrations, and impacts can be constructed.

b. By applying measurements of relevant parameters associated with lake degradation, the generalized model can be transformed into an operational representation of a lake, its drainage basin, and related nutrients.

c. With such a transformation, an assessment of the potential for eutrophication control can be made.

LAKE ANALYSIS

In this report, the first stage of evaluation of lake and watershed data collected from the study lake and its drainage basin is documented. The report is formatted to provide state environmental agencies with specific information for basin planning [§303(e)], water quality criteria/standards review [§303(c)], clean lakes [§314(a,b)], and water quality monitoring [§106 and §305(b)] activities mandated by the Federal Water Pollution Control Act Amendments of 1972.

Beyond the single lake analysis, broader based correlations between nutrient concentrations (and loading) and trophic condition are being made to advance the rationale and data base for refinement of nutrient water quality criteria for the Nation's freshwater lakes. Likewise, multivariate evaluations for the relationships between land use, nutrient export, and trophic condition, by lake class or use, are being developed to assist in the formulation of planning guidelines and policies by the U.S. Environmental Protection Agency and to augment plans implementation by the states.

ACKNOWLEDGEMENTS

The staff of the National Eutrophication Survey (Office of Research and Development, U.S. Environmental Protection Agency) expresses sincere appreciation to the Alabama Water Improvement Commission for professional involvement and to the Alabama National Guard for conducting the tributary sampling phase of the Survey.

E. John Williford, Chief, Surveillance and Monitoring Section; and John C. Chitwood, Biologist, Surveillance and Monitoring Section; and Sam L. Coleman, Water Quality Planning Section; and M. H. Floyd, Engineer, Surveillance and Monitoring Section; and Truman Green, Engineer, Municipal Waste Control Section; and Tim McCartha, Biologist, Surveillance and Monitoring Section; and James E. McIndoe, Engineer, Water Quality Planning Section; and Richard T. Maddox, Engineer, Industrial Waste Control Section; and James T. White, Engineer, Municipal Waste Control Section provided invaluable lake documentation and counsel during the course of the Survey.

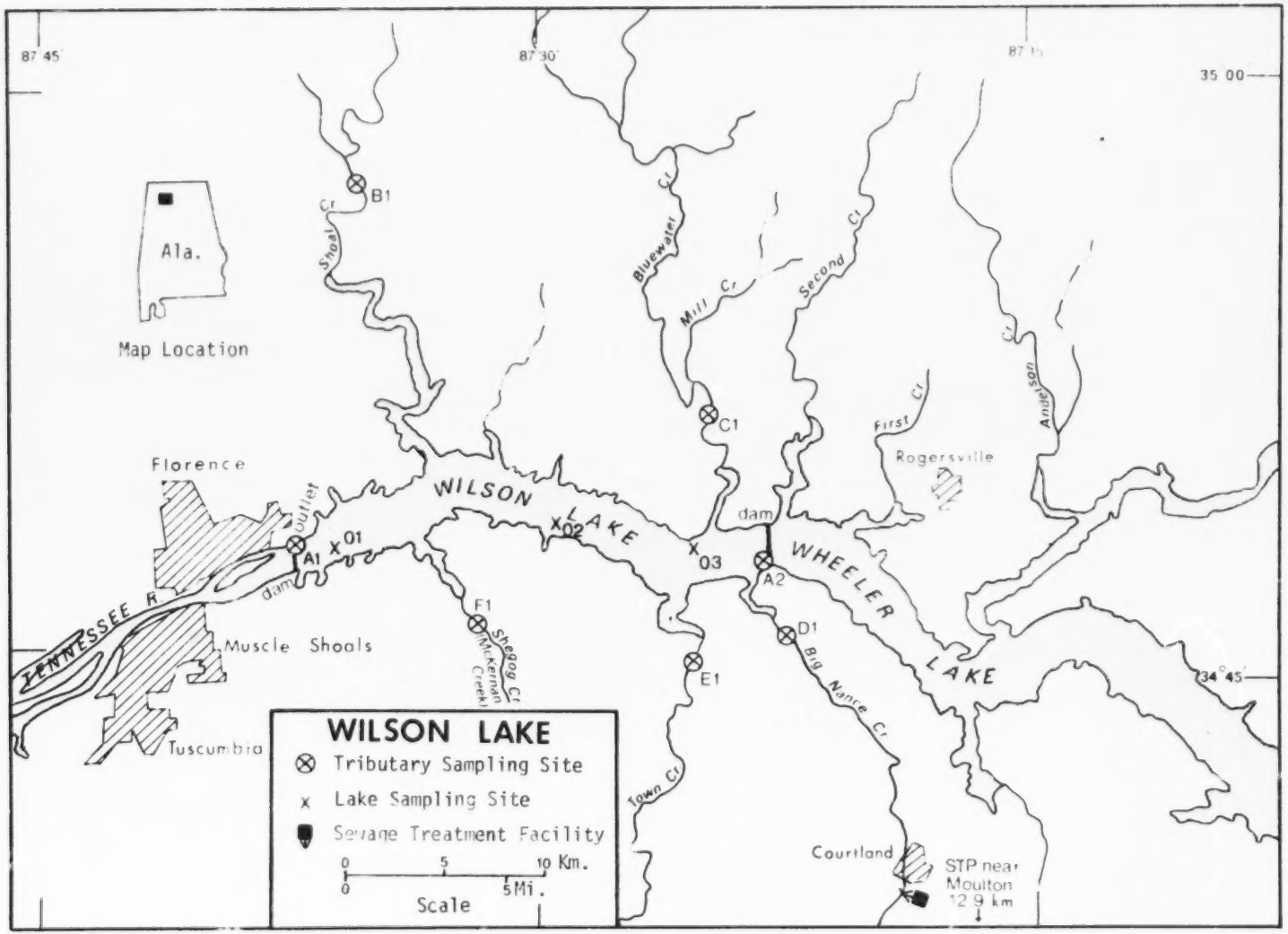
Major General Charles A. Rollo, Adjutant General of Alabama, and Project Officer Lt. Col. Wash B. Ray, who directed the volunteer efforts of the Alabama National Guardsmen, are also gratefully acknowledged for their assistance to the Survey.

NATIONAL EUTROPHICATION SURVEY

STUDY LAKES

STATE OF ALABAMA

LAKE NAME	COUNTY
Bankhead	Walker
Gantt	Covington
Guntersville	Marshall, Johnson
Holt Lock and Dam	Tuscaloosa
Lay	Chilton, Coosa
Martin	Elmore, Tallapoosa
Mitchell	Coosa, Chilton
Pickwick	Colbert, Lauderdale (Tishomingo in MS and Hardin in TN)
Purdy	Jefferson, Shelby
Weiss	Cherokee
Wilson	Lauderdale, Colbert, Lawrence


87 45
87 30
87 15
35 00
Ala.
Map Location
B1
Shoal Cr
Bluewater Cr
Mill Cr
Second Cr
Anderson Cr
C1
First Cr
Rogersville
Florence
WILSON LAKE
outlet
A1
X01
X02
X03
dam
A2
WHEELER LAKE
TENNESSEE R
dam
F1
McKernan Creek
Shegog Cr
Muscle Shools
D1
Big Nance Cr
E1
34 45
Tuscumbia
Town Cr
Courtland
STP near Moulton 12.9 km
WILSON LAKE
Tributary Sampling Site
Lake Sampling Site
Sewage Treatment Facility
0 5 10 Km.
0 5 Mi.
Scale

REPORT ON WILSON LAKE, ALABAMA

STORET NO. 0114

I. CONCLUSIONS

A. Trophic Condition:*

Wilson Lake is considered eutrophic, i.e., nutrient rich and highly productive, based upon field observations and analysis of Survey data. Whether such nutrient enrichment is to be considered beneficial or deleterious is determined by its actual or potential impact upon designated beneficial water uses of each lake.

Of the 11 Alabama lakes surveyed in 1973, 7 had less median total and median dissolved orthophosphorus, 6 had less median inorganic nitrogen, 7 had less mean chlorophyll a, and 2 had greater Secchi disc transparency.

Chlorophyll a levels ranged from a low of 2.1 µg/l in the spring to a high of 19.1 µg/l in the fall. Phytoplankton genera identified were generally pollution tolerant forms.

B. Rate-Limiting Nutrient:

Algal assay results indicate that Wilson Lake was limited by available phosphorus levels. The ratios of inorganic nitrogen to orthophosphorus (N/P) in sampled

*See Appendix E.

waters indicate primary limitation by phosphorus during the spring (22/1) and summer (23/1) sampling periods and nitrogen limitation during the fall (12/1).

C. Nutrient Controllability:

1. Point sources -

The mean annual phosphorus load from point sources was estimated to be less than 1% of the total load directly reaching Wilson Lake. The cities of Courtland and Moulton contributed this load.

Nutrient loading to Wilson Lake is excessive, exceeding Vollenweider's (1975) proposed eutrophic loading for phosphorus by eight times, and exceeding the oligotrophic loading by sixteen times for a lake of such mean depth and hydraulic retention time. However, it should be noted that Vollenweider's model may not fully apply to lakes with short hydraulic retention times (six days for Wilson Lake).

2. Nonpoint sources -

Loading to Wilson Lake is largely uncontrollable, with the Tennessee River contributing approximately 97% of the phosphorus and nitrogen input to the lake. Surrounding land uses and point sources upriver contributing to the Tennessee River load should be analyzed before a nutrient budget for the lake is defined.

In general, few lakes are nitrogen limited as a result of low nitrogen. Rather, excessive phosphorus levels shift limitations to nitrogen or other factors. Regardless of the primary nutrient limitation suggested by either algal assay or nutrient ratios, the most feasible approach to nutrient control, if desirable, is through available phosphorus control technology and subsequent establishment of phosphorus limitation within the water body.

II. LAKE AND DRAINAGE BASIN CHARACTERISTICS

Lake and drainage basin characteristics are itemized below. Lake morphometry and hydraulic retention times were provided by the Tennessee Valley Authority; tributary flow data were provided by the Alabama District Office of the U.S. Geological Survey (USGS) (outlet drainage area includes the lake surface area). Drainage areas for tributaries B(1), D(1), and E(1), and mean flow for tributary Station A(1), were provided by the Tennessee Valley Authority. Precipitation values are estimated by methods as outlined in National Eutrophication Survey (NES) Working Paper No. 175. A table of metric/English conversions is included as Appendix A.

A. Lake Morphometry:

1. Surface area: 62.78 km^2.
2. Mean depth: 12.5 meters.
3. Maximum depth: 34.3 meters.
4. Volume: 783.026 x 10^6 m^3.
5. Mean hydraulic retention time: 6 days.

B. Tributary and Outlet:
(See Appendix B for flow data)

1. Tributaries -

Name	Drainage area (km^2)	Mean flow (m^3/sec)
A(2) Tennessee River	76,638.1	1,381.93
B(1) Shoal Creek	1,282.0	22.27
C(1) Bluewater Creek	334.1	4.16
D(1) Big Nance Creek	499.9	7.73
E(1) Town Creek	652.7	10.45
F(1) Shegog Creek (McKernan Creek)	6.5	0.09
Minor tributaries and immediate drainage -	165.1	6.90
Totals	79,578.4	1,433.53

2. Outlet -

A(1) Tennessee River	79,642.5	1,445.00

C. Precipitation:

1. Year of sampling: 163.1 cm.
2. Mean annual: 122.0 cm.

III. LAKE WATER QUALITY SUMMARY

Wilson Lake was sampled three times during the open-water season of 1973 by means of a pontoon-equipped Huey helicopter. Each time, samples for physical and chemical parameters were collected from three stations on the lake (Station 1 was sampled three times, Stations 2 and 3 were sampled twice) and from a number of depths at each station (see map, page v). During each visit, depth-integrated samples were collected from each station for chlorophyll *a* analysis and phytoplankton identification and enumeration. During the first visit, a single 18.9-liter depth-integrated sample was composited for algal assays. Maximum depths sampled were 26.8 meters at Station 1, 13.7 meters at Station 2, and 5.2 meters at Station 3. For a more detailed explanation of NES methods, see NES Working Paper No. 175.

The results obtained are presented in full in Appendix C and are summarized in III-A for waters at the surface and at the maximum depth for each site. Results of the phytoplankton counts and chlorophyll *a* determinations are included in III-B. Results of the limiting nutrient study are presented in III-C.

WILSON LAKE
STORET CODE 0114

PHYSICAL AND CHEMICAL CHARACTERISTICS

PARAMETER	(6/ 9/73) S*** = 3 N*	RANGE	MEDIAN	MAX DEPTH RANGE (METERS)	(8/15/73) S*** = 2 N*	RANGE	MEDIAN	MAX DEPTH RANGE (METERS)	(10/22/73) S*** = 2 N*	RANGE	MEDIAN	MAX DEPTH RANGE (METERS)
TEMPERATURE (DEG CENT)												
0.-1.5 M DEPTH	5	26.3- 27.2	25.1	0.0- 1.5	4	29.4- 29.6	29.5	0.0- 1.5	3	22.4- 23.6	22.6	0.0- 1.5
MAX DEPTH**	3	22.7- 24.7	23.8	4.6- 26.8	2	28.7- 28.8	28.7	13.7- 25.9	2	22.1- 22.8	22.4	5.2- 24.1
DISSOLVED OXYGEN (MG/L)												
0.-1.5 M DEPTH	2	7.4- 7.6	7.5	1.5- 1.5	4	7.2- 9.6	9.1	0.0- 1.5	1	6.6- 6.6	6.6	1.5- 1.5
MAX DEPTH**	3	6.8- 7.6	6.9	4.6- 26.8	2	4.8- 5.0	4.9	13.7- 25.9	2	6.0- 6.4	6.2	5.2- 24.1
CONDUCTIVITY (UMHOS)												
0.-1.5 M DEPTH	5	140.- 145.	140.	0.0- 1.5	4	170.- 170.	170.	0.0- 1.5	3	177.- 180.	177.	0.0- 1.5
MAX DEPTH**	3	140.- 145.	140.	4.6- 26.8	2	170.- 170.	170.	13.7- 25.9	2	176.- 177.	177.	5.2- 24.1
PH (STANDARD UNITS)												
0.-1.5 M DEPTH	5	6.8- 8.2	7.5	0.0- 1.5	4	7.5- 7.9	7.8	0.0- 1.5	3	7.5- 7.6	7.6	0.0- 1.5
MAX DEPTH**	3	7.3- 8.2	7.9	4.6- 26.8	2	6.9- 6.9	6.9	13.7- 25.9	2	7.4- 7.5	7.4	5.2- 24.1
TOTAL ALKALINITY (MG/L)												
0.-1.5 M DEPTH	5	51.- 55.	52.	0.0- 1.5	4	51.- 65.	58.	0.0- 1.5	3	66.- 67.	67.	0.0- 1.5
MAX DEPTH**	3	52.- 56.	53.	4.6- 26.8	2	48.- 53.	51.	13.7- 25.9	2	64.- 67.	66.	5.2- 24.1
TOTAL P (MG/L)												
0.-1.5 M DEPTH	5	0.052-0.057	0.055	0.0- 1.5	4	0.024-0.037	0.032	0.0- 1.5	3	0.051-0.066	0.064	0.0- 1.5
MAX DEPTH**	3	0.055-0.065	0.062	4.6- 26.8	2	0.027-0.033	0.030	13.7- 25.9	2	0.067-0.072	0.069	5.2- 24.1
DISSOLVED ORTHO P (MG/L)												
0.-1.5 M DEPTH	5	0.019-0.027	0.022	0.0- 1.5	4	0.007-0.012	0.009	0.0- 1.5	3	0.031-0.039	0.038	0.0- 1.5
MAX DEPTH**	3	0.021-0.024	0.023	4.6- 26.8	2	0.022-0.024	0.023	13.7- 25.9	2	0.040-0.043	0.041	5.2- 24.1
NO2+NO3 (MG/L)												
0.-1.5 M DEPTH	5	0.400-0.430	0.420	0.0- 1.5	4	0.180-0.220	0.185	0.0- 1.5	3	0.390-0.420	0.400	0.0- 1.5
MAX DEPTH**	3	0.400-0.450	0.440	4.6- 26.8	2	0.300-0.310	0.305	13.7- 25.9	2	0.390-0.430	0.410	5.2- 24.1
AMMONIA (MG/L)												
0.-1.5 M DEPTH	5	0.040-0.110	0.100	0.0- 1.5	4	0.050-0.090	0.060	0.0- 1.5	3	0.040-0.070	0.060	0.0- 1.5
MAX DEPTH**	3	0.090-0.120	0.090	4.6- 26.8	2	0.100-0.110	0.105	13.7- 25.9	2	0.040-0.060	0.050	5.2- 24.1
KJELDAHL N (MG/L)												
0.-1.5 M DEPTH	5	0.200-0.700	0.400	0.0- 1.5	4	0.200-0.700	0.400	0.0- 1.5	3	0.200-0.300	0.300	0.0- 1.5
MAX DEPTH**	3	0.200-0.300	0.200	4.6- 26.8	2	0.200-0.200	0.200	13.7- 25.9	2	0.200-0.200	0.200	5.2- 24.1
SECCHI DISC (METERS)	3	0.6- 0.9	0.9		2	1.6- 2.0	1.9		2	1.5- 1.5	1.5	

* N = NO. OF SAMPLES
** MAXIMUM DEPTH SAMPLED AT EACH SITE
*** S = NO. OF SITES SAMPLED ON THIS DATE

B. Biological Characteristics:

1. Phytoplankton -

Sampling Date	Dominant Genera	Algal Units per ml
06/09/73	1. Melosira	2,077
	2. Flagellates	756
	3. Cyclotella	189
	4. Cryptomonas	142
	5. Stephanodiscus	71
	Other genera	119
	Total	3,354
08/16/73	1. Melosira	3,686
	2. Flagellates	1,574
	3. Nitzschia	881
	4. Cyclotella	829
	5. Merismopedia	472
	Other genera	1,164
	Total	8,606
10/22/73	1. Melosira	545
	2. Flagellates	467
	3. Cryptomonas	253
	4. Cyclotella	136
	5. Dinoflagellates	58
	Other genera	173
	Total	1,632

2. Chlorophyll a -

Sampling Date	Station Number	Chlorophyll a (µg/l)
06/09/73	1	5.0
	2	2.3
	3	2.1
08/16/73	1	6.6
	2	12.1
10/22/73	1	19.9
	2	----
	3	3.8

C. Limiting Nutrient Study:

1. Autoclaved, filtered, and nutrient spiked -

Spike(mg/l)	Ortho P Conc.(mg/l)	Inorganic N Conc.(mg/l)	Maximum Yield (mg/l-dry wt.)
Control	0.019	0.498	4.5
0.010 P	0.029	0.498	10.4
0.020 P	0.039	0.498	9.1
0.050 P	0.069	0.498	12.2
0.025 P + 0.5 N	0.044	0.998	13.3
0.050 P + 1.0 N	0.069	1.498	25.4
1.0 N	0.019	1.498	4.0

2. Filtered and nutrient spiked -

Spike(mg/l)	Ortho P Conc.(mg/l)	Inorganic N Conc.(mg/l)	Maximum Yield (mg/l-dry wt.)
Control	0.014	0.486	2.3
0.010 P	0.024	0.486	7.8
0.020 P	0.034	0.486	10.4
0.050 P	0.064	0.486	14.7
0.025 P + 0.5 N	0.039	0.986	15.5
0.050 P + 1.0 N	0.064	1.486	31.2
1.0 N	0.014	1.486	2.5

3. Discussion -

The control yield of the assay alga, Selenastrum capricornutum, indicates that the potential for primary production in Wilson Lake was high at the time of sampling. Increased growth of the test alga in response to incremental additions of orthophosphorus to and beyond 20 µg/liter concentration indicates that the lake was phosphorus-limited when sampled. Spikes with nitrogen and phosphorus simultaneously resulted in maximum yield. The addition of nitrogen alone did not stimulate growth significantly when compared to the control yield.

The N/P ratio in the field samples suggests primary limitation by phosphorus during the spring (22/1) and summer (23/1) sampling periods and nitrogen limitation during the fall (12/1).

IV. NUTRIENT LOADINGS
(See Appendix D for data)

For the determination of nutrient loadings, the Alabama National Guard collected monthly near-surface grab samples from each of the tributary sites indicated (see map, page v), except for the high runoff months of January and February when two samples were collected. Sampling was begun in March 1973, and was completed in February 1974.

Through an interagency agreement, stream flow estimates for the year of sampling and a "normalized" or average year were provided by the Alabama District Office of USGS for the tributary sites nearest the lake.

In this report, nutrient loads for sampled tributaries except the Tennessee River, at outlet Station A(1), were determined by using a modification of a USGS computer program for calculating stream loadings. Nutrient loads indicated for tributaries are those measured minus known point source loads, if any. Nutrient loads for Station A(1) were calculated using the mean annual flow and nutrient concentrations in the Tennessee River at that site.

Nutrient loadings for unsampled "minor tributaries and immediate drainage" ("ZZ" of USGS) were estimated by using the mean of the nutrient loads, in $kg/km^2/year$, at Station B(1) and multiplying the means by the ZZ area in km^2.

Nutrient loads from the communities of Courtland and Moulton were estimated using 1.134 kg P and 3.401 kg N per capita per year.

A. Waste Sources:

1. Known municipal -

Name	Population Served*	Treatment	Mean Flow (m^3/d)	Receiving Water
Courtland	547	Septic tanks	-----	Big Nance Creek
Moulton	2,470	Activated sludge	934.9**	Crow Branch/ Borden Creek/ Big Nance Creek

2. Known industrial - None

*1970 census.
**Estimated based on 0.3785 m^3/capita/day.

B. Annual Total Phosphorus Loading - Average Year:

1. Inputs -

Source	kg P/yr	% of total
a. Tributaries (nonpoint load) -		
A(2) Tennessee River	2,321,335	96.5
B(1) Shoal Creek	28,035	1.2
C(1) Bluewater Creek	4,435	0.2
D(1) Big Nance Creek	13,225	0.6
E(1) Town Creek	31,680	1.3
F(1) Shegog Creek	85	<0.1
b. Minor tributaries and immediate drainage (nonpoint load) -	3,635	0.1
c. Known municipal STP's -		
Courtland	60	<0.1
Moulton	2,800	0.1
d. Septic tanks* -	45	<0.1
e. Known industrial - None		
f. Direct precipitation** -	1,100	<0.1
Total	2,406,435	100.0

2. Outputs - Tennessee River A(1) 2,415,185

3. Net annual P export*** - 8,750

*Estimate based on 153 lakeside residences.
**Estimated (see NES Working Paper No. 175).
***Export probably due to unknown sources and/or sampling errors.

C. Annual Total Nitrogen Loading - Average Year:

1. Inputs -

Source	kg N/yr	% of total
a. Tributaries (nonpoint load) -		
A(2) Tennessee River	59,163,070	97.0
B(1) Shoal Creek	552,380	0.9
C(1) Bluewater Creek	133,275	0.2
D(1) Big Nance Creek	313,290	0.5
E(1) Town Creek	666,120	1.1
F(1) Shegog Creek	5,295	<0.1
b. Minor tributaries and immediate drainage (nonpoint load) -	71,200	0.1
c. Known municipal STP's -		
Courtland	2,330	<0.1
Moulton	8,400	<0.1
d. Septic tanks* -	1,630	<0.1
e. Known industrial - None		
f. Direct precipitation** -	67,780	0.1
Total	60,984,770	100.0
2. Outputs - Tennessee River A(1)	52,359,380	
3. Net annual N accumulation -	8,625,390	

*Estimate based on 153 lakeside residences.
**Estimated (see NES Working Paper No. 175).

D. Mean Annual Nonpoint Nutrient Export by Subdrainage Area:

Tributary	kg P/km^2/yr	kg N/km^2/yr
Tennessee River	30	772
Shoal Creek	22	431
Bluewater Creek	13	399
Big Nance Creek	26	627
Town Creek	48	1,021
Shegog Creek	13	815

E. Yearly Loadings:

In the following table, the existing phosphorus annual loading is compared to the relationship proposed by Vollenweider (1975). Essentially, his eutrophic loading is that at which the receiving waters would become eutrophic or remain eutrophic; his oligotrophic loading is that which would result in the receiving water remaining oligotrophic or becoming oligotrophic if morphometry permitted. A mesotrophic loading would be considered one between eutrophic and oligotrophic.

Note that Vollenweider's model may not apply to lakes with short hydraulic retention times or in which light penetration is severely restricted by high concentrations of suspended solids in the surface waters.

	Total Yearly Phosphorus Loading ($g/m^2/yr$)
Estimated loading for Wilson Lake	38.33
Vollenweider's eutrophic loading	4.70
Vollenweider's oligotrophic loading	2.35

V. LITERATURE REVIEWED

U.S. Environmental Protection Agency. 1975. National Eutrophication Survey Methods for Lakes Sampled in 1973, 1974, 1975. Working Paper No. 175. National Environmental Research Center, Las Vegas, Nevada, and Pacific Northwest Environmental Research Laboratory, Corvallis, Oregon.

Vollenweider, R. A., 1975. Input-Output Models With Final Reference to the Phosphorus Loading Concept in Limnology. Schweiz. Z. Hydrol. 37: 53-84.

VI. APPENDICES

APPENDIX A

CONVERSION FACTORS

CONVERSION FACTORS

Hectares x 2.471 = acres

Kilometers x 0.6214 = miles

Meters x 3.281 = feet

Cubic meters x 8.107×10^{-4} = acre/feet

Square kilometers x 0.3861 = square miles

Cubic meters/sec x 35.315 = cubic feet/sec

Centimeters x 0.3937 = inches

Kilograms x 2.205 = pounds

Kilograms/square kilometer x 5.711 = lbs/square mile

APPENDIX B

TRIBUTARY FLOW DATA

TRIBUTARY FLOW INFORMATION FOR ALABAMA 07/22/76

LAKE CODE 0114 WILSON RESERVOIR

TOTAL DRAINAGE AREA OF LAKE(SQ KM) 79642.4

TRIBUTARY	SUB-DRAINAGE AREA(SQ KM)	NORMALIZED FLOWS(CMS) JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	MEAN
0114A1	79642.4	2169.07	2630.07	2264.78	1548.37	1135.22	901.89	962.77	937.57	875.56	824.02	1072.08	1531.66	1397.69
0114A2	76638.1	2374.91	2364.20	2054.33	1236.14	1061.82	956.46	1004.20	968.35	867.46	873.80	1112.34	1758.67	1381.78
0114M1	1150.0	32.56	48.14	53.80	39.64	18.83	10.48	8.50	5.95	5.27	5.72	15.57	24.64	22.26
0114C1	334.1	6.23	9.91	11.33	7.79	3.26	1.64	1.27	0.82	0.71	0.79	2.07	4.47	4.16
0114D1	486.9	12.32	18.69	18.12	13.88	6.51	2.58	2.58	1.81	1.53	1.13	4.67	9.77	7.73
0114E1	621.6	16.71	23.79	23.22	18.69	8.78	3.96	3.96	2.83	2.44	1.87	6.80	13.31	10.45
0114F1	6.5	0.153	0.249	0.241	0.176	0.062	0.020	0.020	0.014	0.011	0.008	0.042	0.110	0.091
0114Z2	404.0	10.65	14.20	16.45	12.54	5.61	2.75	2.35	1.64	1.44	1.36	3.94	8.13	6.90

SUMMARY

TOTAL DRAINAGE AREA OF LAKE = 79642.4
SUM OF SUB-DRAINAGE AREAS = 79640.9

TOTAL FLOW IN = 17256.41
TOTAL FLOW OUT = 16853.04

MEAN MONTHLY FLOWS AND DAILY FLOWS(CMS)

TRIBUTARY	MONTH	YEAR	MEAN FLOW	DAY	FLOW	DAY	FLOW	DAY	FLOW
0114A1	3	73	4641.129	3	1480.971				
	4	73	1849.090	4	2976.101				
	5	73	2290.833	6	1574.417				
	6	73	2160.575	18	2106.773				
	7	73	1319.848	14	1127.010				
	8	73	1247.074	11	1384.694				
	9	73	950.880	16	1044.892				
	10	73	911.802	13	560.674				
	11	73	1407.347	17	886.317				
	12	73	3151.665	8	2137.922				
	1	74	6059.805	5	5623.723	19	6073.961		
	2	74	4643.961	10	4587.328	23	4190.891		
0114A2	3	73	4271.879	4	1783.961				
	4	73	1804.633	13	1129.842				
	5	73	2216.643	9	2002.001				
	6	73	2242.128	13	1619.724				
	7	73	1311.353	18	1220.456				
	8	73	1218.474	11	1509.288				
	9	73	958.808	18	1036.396				
	10	73	862.814	18	557.842				
	11	73	1275.107	19	866.495				
	12	73	2955.996	11	1667.862				
	1	74	5454.105	8	5170.656	24	4397.605		
	2	74	4241.504	10	4363.625	23	3822.774		

TRIBUTARY FLOW INFORMATION FOR ALABAMA 07/22/76

LAKE CODE 0114 WILSON RESERVOIR

MEAN MONTHLY FLOWS AND DAILY FLOWS(CMS)

TRIBUTARY	MONTH	YEAR	MEAN FLOW	DAY	FLOW	DAY	FLOW	DAY	FLOW
0114B1	3	73	127.426	3	32.848				
	4	73	63.147	4	53.519				
	5	73	37.095	6	45.307				
	6	73	21.804	18	16.849				
	7	73	15.009	14	11.185				
	8	73	9.911	11	9.628				
	9	73	6.796	16	7.221				
	10	73	6.938	18	6.230				
	11	73	48.139	17	7.079				
	12	73	29.166	8	16.282				
	1	74	130.257	5	84.951	19	36.953		
	2	74	58.757	10	27.751	23	76.455		
0114C1	3	73	31.149	4	5.947				
	4	73	13.592	13	7.787				
	5	73	7.221	9	7.646				
	6	73	3.964	13	3.625				
	7	73	2.464	18	4.984				
	8	73	1.529	17	1.388				
	9	73	0.963	18	0.934				
	10	73	0.991	18	0.878				
	11	73	9.769	19	0.934				
	12	73	5.493	11	2.010				
	1	74	31.998	8	7.249	24	17.698		
	2	74	12.516	12	4.219	20	11.327		
0114D1	3	73	56.917	6	10.619				
	4	73	20.388	4	13.592				
	5	73	9.061	5	6.570				
	6	73	6.060	21	12.176				
	7	73	5.720	14	3.398				
	8	73	0.934	14	1.076				
	9	73	0.340	15	0.453				
	10	73	0.340	12	0.425				
	11	73	8.920	9	0.340				
	12	73	18.632	8	3.738				
	1	74	39.474	5	34.632	21	35.906		
	2	74	29.223	12	9.345	25	12.403		
0114E1	3	73	72.661	4	16.707				
	4	73	26.051	13	11.893				
	5	73	12.459	9	15.574				
	6	73	8.637	13	15.574				
	7	73	8.353	18	13.592				
	8	73	1.586	17	1.756				
	9	73	0.623	18	0.595				
	10	73	0.623	18	0.821				
	11	73	12.176	19	0.340				
	12	73	23.786	11	4.389				
	1	74	50.404	8	24.919	24	48.309		
	2	74	37.293	12	12.743	20	26.193		

TRIBUTARY FLOW INFORMATION FOR ALABAMA 07/22/76

LAKE CODE 0114 WILSON RESERVOIR

MEAN MONTHLY FLOWS AND DAILY FLOWS(CMS)

TRIBUTARY	MONTH	YEAR	MEAN FLOW	DAY	FLOW	DAY	FLOW	DAY	FLOW
0114F1	3	73	0.736	4	0.150				
	4	73	0.272	13	0.093				
	5	73	0.099	9	0.136				
	6	73	0.059	13	0.136				
	7	73	0.057	18	0.113				
	8	73	0.006	17	0.006				
	9	73	0.003	18	0.003				
	10	73	0.003	18	0.003				
	11	73	0.094	19	0.0				
	12	73	0.241	11	0.023				
	1	74	0.510	8	0.255	24	0.510		
	2	74	0.396	12	0.102	20	0.272		
0114Z2	3	73	45.930	4	10.477				
	4	73	19.340	4	14.725	13	10.109		
	5	73	9.854	5	11.950	9	11.298		
	6	73	6.088	13	8.099	21	8.637		
	7	73	4.757	14	3.143	18	8.665		
	8	73	2.039	11	2.039	17	1.954		
	9	73	1.303	17	1.303	18	1.246		
	10	73	1.303	13	1.189	18	1.246		
	11	73	11.638	17	1.303	19	1.218		
	12	73	12.658	8	4.191	11	3.171		
	1	74	38.964	5	29.138	8	14.385		
	2	74	22.314	12	7.646	20	17.925		

APPENDIX C

PHYSICAL AND CHEMICAL DATA

START RETRIEVAL DATE 76/07/22

011401
34 48 05.0 087 16 35.0 3
WILSON LAKE
01077 ALABAMA

040491

FEMALES 2111202
0042 FEET DEPTH CLASS 00

DATE FROM TO	TIME OF DAY	DEPTH FEET	00010 WATER TEMP CENT	00300 DO MG/L	00077 TRANSP SECCHI INCHES	00094 CNDUCTVY FIELD MICROMHO	00400 PH SU	00410 T ALK CACO3 MG/L	00610 NH3-N TOTAL MG/L	00625 TOT KJEL N MG/L	00630 NO2&NO3 N-TOTAL MG/L	00671 PHOS-DIS ORTHO MG/L P
73/06/08	16 15	0000	27.2		36	140	6.80	52	0.080	0.700	0.420	0.019
	16 15	0006	26.3	8.5		140	7.10	52	0.050	0.200	0.400	0.019
	16 15	0015	24.4	8.4		140	7.10	51	0.050	0.200	0.400	0.021
	16 15	0030	23.9	7.6		140	7.30	52	0.090	0.200	0.430	0.025
	16 15	0050	23.4	7.5		140	7.30	52	0.110	0.200	0.440	0.026
	16 15	0070	23.1	7.3		140	7.30	52	0.100	0.200	0.440	0.028
	16 15	0088	22.7	6.9		140	7.30	52	0.090	0.200	0.440	0.028
73/06/16	11 05	0000	29.5	9.6	78	170	7.90	55	0.050	0.700	0.190	0.007
	11 05	0005	29.5	8.6		170	7.90	53	0.050	0.400	0.180	0.004
	11 05	0015	29.2	9.0		170	7.50	50	0.050	0.200K	0.140	0.009
	11 05	0025	29.2	7.2		170	7.50	50	0.060	0.200K	0.250	0.004
	11 05	0040	29.1	8.6		170	7.10	49	0.070	0.200K	0.250	0.013
	11 05	0060	28.9	5.0		169	7.00	50	0.100	0.200K	0.300	0.022
	11 05	0085	28.8	4.8		170	6.90	48	0.100	0.200K	0.310	0.024
73/12/22	11 50	0000	23.6		60	177	7.60	67	0.040	0.300	0.420	0.031
	11 50	0015	23.2	6.2		176	7.50	65	0.040	0.200K	0.430	0.036
	11 50	0050	22.9	6.0		177	7.40	65	0.030	0.200	0.430	0.040
	11 50	0079	22.8	6.0		177	7.40	64	0.040	0.200K	0.430	0.040

DATE FROM TO	TIME OF DAY	DEPTH FEET	00665 PHOS-TOT MG/L P	32217 CHLRPHYL A UG/L
73/06/08	16 15	0000	0.055	5.0
	16 15	0006	0.056	
	16 15	0015	0.050	
	16 15	0030	0.055	
	16 15	0050	0.056	
	16 15	0070	0.054	
	16 15	0088	0.060	
73/06/16	11 05	0000	0.024	6.0
	11 05	0005	0.034	
	11 05	0015	0.036	
	11 05	0025	0.032	
	11 05	0040	0.024	
	11 05	0060	0.029	
	11 05	0085	0.031	
73/12/22	11 50	0000	0.051	19.9
	11 50	0015	0.052	
	11 50	0050	0.061	
	11 50	0079	0.067	

K VALUE KNOWN TO BE
LESS THAN [SO] GIVEN

STORET RETRIEVAL DATE 76/07/22

011402
34 49 05.0 087 30 32.0 3
WILSON LAKE
01033 ALABAMA

040891

11EPALES - 2111202
0048 FEET DEPTH CLASS 00

DATE FROM TO	TIME OF DAY	DEPTH FEET	00010 WATER TEMP CENT	00300 DO MG/L	00077 TRANSP SECCHI INCHES	00094 CNDUCTVY FIELD MICROMHO	00400 PH SU	00410 T ALK CACO3 MG/L	00610 NH3-N TOTAL MG/L	00625 TOT KJEL N MG/L	00630 NO2&NO3 N-TOTAL MG/L	00671 PHOS-DIS ORTHO MG/L P
73/06/09	16	40 0000	25.3		36	145	7.50	55	0.100	0.600	0.430	0.022
	16	40 0005	24.3	7.4		140	7.50	54	0.110	0.300	0.420	0.022
	16	40 0015	24.1	7.3		140	7.50	54	0.100	0.200	0.420	0.022
	16	40 0030	24.0	7.3		145	7.40	56	0.110	0.200	0.420	0.026
	16	40 0045	23.8	6.8		145	7.40	56	0.120	0.300	0.450	0.023
73/08/16	12	00 0000	29.6	9.6	72	170	7.70	52	0.080	0.400	0.180	0.012
	12	00 0005	29.4	7.2		170	7.50	51	0.060	0.200K	0.220	0.009
	12	00 0015	29.1	5.6		171	7.30	52	0.110	0.200K	0.290	0.013
	12	00 0020	28.8			170						
	12	00 0025	28.8			170						
	12	00 0035	28.8	4.8		170	7.10	53	0.100	0.200K	0.310	0.019
	12	00 0045	28.7	5.0		170	6.90	53	0.110	0.200K	0.300	0.022

DATE FROM TO	TIME OF DAY	DEPTH FEET	00665 PHOS-TOT MG/L P	32217 CHLRPHYL A UG/L
73/06/09	16	40 0000	0.056	2.3
	16	40 0005	0.052	
	16	40 0015	0.049	
	16	40 0030	0.057	
	16	40 0045	0.055	
73/08/16	12	00 0000	0.037	12.1
	12	00 0005	0.031	
	12	00 0015	0.027	
	12	00 0035	0.026	
	12	00 0045	0.027	

K VALUE KNOWN TO BE
LESS THAN INDICATED

STORET RETRIEVAL DATE 76/07/22

011403
34 48 20.0 087 25 35.0 3
WILSON LAKE
01077 ALABAMA

040891

11EPALES 2111202
0018 FEET DEPTH CLASS 00

DATE FROM TO	TIME OF DAY	DEPTH FEET	00010 WATER TEMP CENT	00300 DO MG/L	00077 TRANSP SECCHI INCHES	00094 CNDUCTVY FIELD MICROMHO	00400 PH SU	00410 T ALK CACO3 MG/L	00610 NH3-N TOTAL MG/L	00625 TOT KJEL N MG/L	00630 NO2&NO3 N-TOTAL MG/L	00671 PHOS-DIS ORTHO MG/L P
73/06/09	17	35 0000	25.1		24	140	8.20	51	0.100	0.400	0.400	0.022
	17	35 0005	24.9	7.6		140	8.20	52	0.100	0.200	0.400	0.021
	17	35 0015	24.7	7.6		140	8.20	53	0.090	0.200	0.400	0.021
73/10/22	12	15 0000	22.6		60	180	7.60	66	0.070	0.300	0.400	0.039
	12	15 0005	22.4	6.6		177	7.50	67	0.060	0.200K	0.390	0.038
	12	15 0017	22.1	6.4		176	7.50	67	0.060	0.200K	0.390	0.043

DATE FROM TO	TIME OF DAY	DEPTH FEET	00665 PHOS-TOT MG/L P	32217 CHLRPHYL A UG/L
73/06/09	17	35 0000	0.055	2.1
	17	35 0005	0.057	
	17	35 0015	0.062	
73/10/22	12	15 0000	0.064	3.8
	12	15 0005	0.066	
	12	15 0017	0.072	

K VALUE KNOWN TO BE
LESS THAN INDICATED

APPENDIX D

TRIBUTARY DATA

STORET RETRIEVAL DATE 76/07/22

0114A1 ES0114A1
34 48 00.0 087 37 30.0 4
TENNESSEE RIVER
01 7.5 FLORENCE
0/WILSON LAKE (RESVR) 040691
WILSON DAM SPILLWAY NEAR FLORENCE
11EPALES 2111204
0000 FEET DEPTH CLASS 00

DATE FROM TO	TIME OF DAY	DEPTH FEET	00630 NO2&NO3 N-TOTAL MG/L	00625 TOT KJEL N MG/L	00610 NH3-N TOTAL MG/L	00671 PHOS-DIS ORTHO MG/L P	00665 PHOS-TOT MG/L P
73/03/03	16 00		0.640	2.200	0.105	0.033	0.045
73/04/04	11 00		0.520	2.900	0.189	0.037	0.065
73/05/06	12 35		0.510	0.760	0.044	0.029	0.050
73/06/18	10 07		0.378	0.250	0.026	0.033	0.045
73/07/14	11 30		0.300	0.900	0.037	0.016	0.035
73/08/11	09 00		0.330	0.100K	0.014	0.019	0.035
73/09/15	09 30		0.300	0.230	0.019	0.029	0.040
73/10/13	11 00		0.320	0.140	0.017	0.037	0.050
73/11/17	10 00		0.450	0.200	0.024	0.034	0.045
73/12/08	09 00		0.400	0.300	0.048	0.051	0.075
74/01/05	09 30		0.504	0.200	0.052	0.040	0.075
74/01/19	10 00		0.550	0.200	0.048	0.028	0.080
74/02/10	10 30		0.616	0.400	0.040	0.030	0.050
74/02/23	09 30		0.550	0.200	0.040	0.030	0.055

K VALUE KNOWN TO BE
LESS THAN INDICATED

STORET RETRIEVAL DATE 76/07/22

0114A2 LS0114A2
34 48 00.0 087 23 00.0 4
TENNESSEE RIVER
01 7.5 WHEELER DAM
I/WILSON LAKE (RESVR) 040891
S END OF POWERHOUSE AT WHEELER DAM
11EPALES 2111204
0000 FEET DEPTH CLASS 00

DATE FROM TO	TIME OF DAY	DEPTH FEET	00630 NO2&NO3 N-TOTAL MG/L	00625 TOT KJEL N MG/L	00610 NH3-N TOTAL MG/L	00671 PHOS-DIS ORTHO MG/L P	00665 PHOS-TOT MG/L P
73/03/04	10 00		0.600	2.736	0.138	0.027	0.045
73/04/13	10 10		0.520	3.000	0.147	0.046	0.075
73/05/09	12 20		0.460	0.750	0.105	0.036	0.055
73/06/13	10 00		0.350	0.560	0.050	0.028	0.060
73/07/18	10 30		0.260	2.200	0.062	0.014	0.050
73/08/11	09 25		0.220	0.350	0.046	0.015	0.045
73/09/18	10 30		0.260	0.440	0.046	0.021	0.040
73/10/18	10 00		0.320	0.650	0.024	0.025	0.045
73/11/19	12 15		0.380	0.550	0.064	0.034	0.035
73/12/11	13 50		0.430	0.200	0.040	0.040	0.060
74/01/08	10 15		0.520	0.800	0.060	0.028	0.075
74/01/24	12 55		0.588	0.400	0.072	0.036	0.065
74/02/10	12 30		0.660	0.600	0.070	0.030	0.050
74/02/23	12 15		0.540	0.500	0.035	0.030	0.065

STORET RETRIEVAL DATE 76/07/22

011481 LS011481
34 57 00.0 087 35 40.0 4
SHOAL CREEK
01 7.5 PRUITTON AL
T/WILSON LAKE (RESVR) 040891
XING OF SEC RD 3.5 MI W OF GREEN HILL
LIEPALES 2111204
0000 FEET DEPTH CLASS 00

DATE FROM TO	TIME OF DAY	DEPTH FEET	00630 NO2&NO3 N-TOTAL MG/L	00625 TOT KJEL N MG/L	00610 NH3-N TOTAL MG/L	00671 PHOS-DIS ORTHO MG/L P	00665 PHOS-TOT MG/L P
73/03/03	16 30		0.420	2.200	0.084	0.023	0.045
73/04/04	12 00		0.420	0.740	0.037	0.015	0.027
73/05/06	13 15		0.315	0.900	0.027	0.022	0.030
73/06/18	10 45		0.480	0.160	0.006	0.030	0.055
73/07/14	11 30		0.294	0.150	0.021	0.017	0.050
73/08/11	11 00		0.189	0.130	0.023	0.017	0.050
73/09/16	10 30		0.252	0.360	0.022	0.032	0.050
73/10/18	11 45		0.147	0.200	0.013	0.030	0.045
73/11/17	09 30		0.088	0.150	0.021	0.029	0.040
73/12/09	10 00		0.630	0.100	0.012	0.028	0.028
74/01/05	11 00		0.520	0.200	0.016	0.024	0.045
74/01/19	09 00		0.650	0.100K	0.016	0.020	0.035
74/02/10	10 00		0.570	0.200	0.015	0.020	0.025
74/02/23	10 15		0.430	0.100K	0.015	0.020	0.035

K VALUE KNOWN TO BE
LESS THAN INDICATED

STORET RETRIEVAL DATE 76/07/22

0114C1 'LS0114C1
34 52 00.0 087 25 00.0 4
BLUEWATER CREEK
01 7.5 WHEELER DAM
T/WILSON LAKE (RESVR) 040891
US 72 BRDG 5 MI E OF KILLEN
11EMALES 2111204
0000 FEET DEPTH CLASS 00

DATE FROM TO	TIME OF DAY	DEPTH FEET	00630 NO2&NO3 N-TOTAL MG/L	00625 TOT KJEL N MG/L	00610 NH3-N TOTAL MG/L	00671 PHOS-DIS URTHO MG/L P	00665 PHOS-TOT MG/L P
73/03/04	09 30		0.550	0.660	0.050	0.016	0.045
73/04/13	10 25		0.430	1.500	0.050	0.005K	0.010
73/05/09	17 35		0.490	0.140	0.024	0.019	0.025
73/06/13	10 20		0.530	0.170	0.005K	0.013	0.025
73/07/18	11 00		0.500	0.270	0.021	0.022	0.055
73/08/17	09 45		0.250	1.200	0.030	0.011	0.100
73/09/18	11 10		0.273	0.380	0.012	0.006	0.020
73/10/18	10 20		0.126	0.750	0.040	0.008	0.015
73/11/19	12 00		0.080	0.950	0.036	0.012	0.012
73/12/11	14 00		0.616	0.100	0.012	0.012	0.015
74/01/08	10 30		0.740	0.300	0.020	0.012	0.020
74/01/24	13 15		0.570	0.800	0.040	0.020	0.110
74/02/12	12 45		0.670	0.400	0.015	0.005	0.005
74/02/20	12 00		0.570	0.200	0.030	0.010	0.015

K VALUE KNOWN TO BE
LESS THAN INDICATED

STORET RETRIEVAL DATE 76/07/22

011401 L5011401
34 46 00.0 087 22 30.0 4
BIG NANCE RIVER
01 7.5 ROGERSVILLE
T/WILSON LAKE (RESVR) 040891
SEC RD XING W EDGE OF VLG OF RED BANK
11EPALES 2111204
0000 FEET DEPTH CLASS 00

DATE FROM TO	TIME OF DAY	DEPTH FEET	00630 NO2&NO3 N-TOTAL MG/L	00625 TOT KJEL N MG/L	00610 NH3-N TOTAL MG/L	00671 PHOS-DIS ORTHO MG/L P	00665 PHOS-TOT MG/L P
73/03/06	06	25	0.990	0.660	0.081	0.028	0.055
73/04/04	14	00	0.960	0.500	0.240	0.020	0.050
73/05/05	10	43	1.140	0.400	0.034	0.028	0.055
73/06/21	14	30	0.650	0.720	0.044	0.064	0.175
73/07/14	09	10	0.980	0.540	0.072	0.024	0.065
73/08/14	09	15	1.300	0.130	0.025	0.012	0.030
73/09/15	09	35	0.730	0.130	0.014	0.011	0.020
73/10/12	14	30	0.530	0.160	0.018	0.005K	0.020
73/11/09	13	00	0.590	0.500	0.019	0.010	0.035
73/12/09	16	05	0.860	0.400	0.020	0.035	0.065
74/01/05	13	30	0.600	0.400	0.036	0.072	0.120
74/01/21	13	20	0.704	0.800	0.040	0.032	0.110
74/02/12	09	00	1.260	0.150	0.015	0.015	0.030
74/02/25	14	00	0.970	0.100	0.040	0.020	0.065

K VALUE KNOWN TO BE
LESS THAN INDICATED

STORET RETRIEVAL DATE 76/07/22

0114E1 LS0114E1
34 45 30.0 087 25 30.0 4
TOWN CREEK
01 7.5 WHEELER DAM
T/WILSON LAKE (RESVR) 040N91
ST HWY 184 BRDG 11 MI E OF MUSCLE SHOALS
11EPALES 2111204
0000 FEET DEPTH CLASS 00

DATE FROM TO	TIME OF DAY	DEPTH FEET	00630 NO2&NO3 N-TOTAL MG/L	00625 TOT KJEL N MG/L	00610 NH3-N TOTAL MG/L	00671 PHOS-DIS ORTHO MG/L P	00665 PHOS-TOT MG/L P
73/03/04	09 20		0.690	2.400	0.180	0.066	0.165
73/04/13	09 30		1.200	3.360	0.105	0.011	0.035
73/05/09	11 21		1.200	0.160	0.021	0.023	0.050
73/06/13	09 45		1.500	0.110	0.017	0.066	0.095
73/07/18	10 15		1.030	0.940	0.054	0.050	0.120
73/08/17	09 15		1.120	2.520	0.180	0.033	0.040
73/09/18	10 05		1.060	0.225	0.022	0.006	0.020
73/10/18	09 45		1.020	0.350	0.020	0.010	0.015
73/11/19	12 30		0.930	0.250	0.012	0.012	
73/12/11	13 40		1.100	0.300	0.016	0.028	0.055
74/01/08	10 00		0.740	0.500	0.028	0.056	0.120
74/01/24	12 45		0.490	1.400	0.052	0.060	0.315
74/02/12	12 15		1.340	0.400	0.020	0.015	0.035
74/02/20	11 45		0.792	0.500	0.045	0.030	0.105

STORET RETRIEVAL DATE 74/07/22

01114F1 'LS0114F1
34 46 30.0 087 31 30.0 4
SHEGOG CREEK
01 7.5 KILLEN
T/WILSON LAKE (RESVR) 040891
CO HWY 48 BRDG .75 MI S OF FORD CITY
TIEPALES 2111204
0000 FEET DEPTH CLASS 00

DATE FROM TO	TIME OF DAY	DEPTH FEET	00630 NO2&NO3 N-TOTAL MG/L	00625 TOT KJEL N MG/L	00610 NH3-N TOTAL MG/L	00671 PHOS-DIS ORTHO MG/L P	00665 PHOS-TOT MG/L P
73/03/04	09 00		0.740	2.500	0.105	0.022	0.050
73/04/13	09 30		0.810	1.680	0.042	0.008	0.025
73/05/09	11 10		0.910	0.125	0.029	0.019	0.025
73/06/13	09 30		1.020	0.200	0.014	0.021	0.050
73/07/18	10 00		0.820	0.500	0.046	0.013	0.035
73/08/17	09 00		1.000	0.630	0.040	0.006	0.020
73/09/18	09 35		0.880	0.210	0.010	0.012	0.025
73/10/18	09 30		0.700	0.200	0.033	0.012	0.020
73/11/19	12 45		0.630	0.950	0.040	0.016	0.020
73/12/11	13 25		1.010	0.700	0.032	0.012	0.035
74/01/08	09 45		1.000	0.300	0.016	0.016	0.030
74/01/24	12 30		0.430	3.300	0.136	0.042	0.270
74/02/12	12 00		1.040	0.500	0.037	0.010	0.020
74/02/20	11 30		0.900	0.300	0.035	0.010	0.015

APPENDIX E

PARAMETRIC RANKINGS OF LAKES SAMPLED BY NES IN 1974 STATE OF ALABAMA

LAKE DATA TO BE USED IN RANKINGS

LAKE CODE	LAKE NAME	MEDIAN TOTAL P	MEDIAN INORG N	500- MEAN SEC	MEAN CHLORA	1S- MIN DO	MEDIAN DISS ORTHO P
0101	BANKHEAD LAKE	0.024	0.770	452.667	4.017	14.400	0.007
0103	GANTT RESERVOIR	0.029	0.300	465.778	2.144	14.000	0.008
0104	GUNTERSVILLE RESERVOIR	0.044	0.480	461.111	8.567	12.200	0.014
0105	HOLT LOCK AND DAM	0.018	0.835	449.417	2.183	13.600	0.006
0106	LAY LAKE	0.076	0.390	473.778	7.656	13.000	0.032
0107	MARTIN LAKE	0.017	0.170	435.250	6.407	15.000	0.004
0108	MITCHELL LAKE	0.053	0.290	466.000	6.211	12.400	0.022
0109	PICKWICK LAKE	0.056	0.535	455.000	2.450	11.400	0.035
0112	WEISS RESERVOIR	0.092	0.260	478.385	11.261	14.900	0.034
0114	WILSON LAKE	0.053	0.460	447.714	7.400	10.200	0.022
0115	LAKE PURDY	0.049	0.170	437.889	12.711	15.000	0.014

PERCENT OF LAKES WITH HIGHER VALUES (NUMBER OF LAKES WITH HIGHER VALUES)

LAKE CODE	LAKE NAME	MEDIAN TOTAL P	MEDIAN INORG N	500-MEAN SEC	MEAN CHLORA	15-MIN SD	MEDIAN DISS ORTHO P	INDEX NO
0101	HANNHEAD LAKE	75 (7)	10 (1)	60 (6)	70 (7)	25 (2)	80 (8)	320
0103	GANTT RESERVOIR	75 (7)	60 (6)	30 (3)	100 (10)	40 (4)	70 (7)	375
0104	GUNTERSVILLE RESERVOIR	60 (6)	30 (3)	40 (4)	20 (2)	80 (8)	55 (5)	285
0105	HULT LOCK AND DAM	90 (9)	0 (0)	70 (7)	90 (9)	50 (5)	90 (9)	340
0106	LAY LAKE	10 (1)	50 (5)	10 (1)	40 (4)	60 (6)	20 (2)	190
0107	MARTIN LAKE	100 (10)	95 (9)	100 (10)	50 (5)	5 (0)	100 (10)	450
0108	MITCHELL LAKE	40 (4)	70 (7)	20 (2)	60 (6)	70 (7)	35 (3)	295
0109	PICKWICK LAKE	20 (2)	20 (2)	50 (5)	80 (8)	90 (9)	0 (0)	260
0112	WEISS RESERVOIR	0 (0)	80 (8)	0 (0)	10 (1)	25 (2)	10 (1)	125
0114	WILSON LAKE	30 (3)	40 (4)	80 (8)	30 (3)	100 (10)	35 (3)	315
0115	LAKE PURDY	50 (5)	95 (9)	90 (9)	0 (0)	5 (0)	55 (5)	295

LAKES RANKED BY INDEX NOS.

RANK	LAKE CODE	LAKE NAME	INDEX NO
1	0107	MARTIN LAKE	450
2	0105	HOLT LOCK AND DAM	340
3	0103	GANTT RESERVOIR	375
4	0101	BANKHEAD LAKE	320
5	0114	WILSON LAKE	315
6	0115	LAKE PURDY	295
7	0108	MITCHELL LAKE	295
8	0104	GUNTERSVILLE RESERVOIR	285
9	0109	PICKWICK LAKE	260
10	0106	LAY LAKE	190
11	0112	WEISS RESERVOIR	125